Jurong Port

23 Jun 2023

No. 42 of 2023

To: All Port Users

ADDENDUM 02 TO 2018 BEST PRACTICE GUIDELINES FOR STOWAGE AND SECURING OF STEEL CARGO

Since the publication of the "Best Practice Guidelines for Stowage and Securing of Steel Cargo" ("the Guidelines", ref. Port Circular No. 49 of 2018), Jurong Port (JP) has been gathering and documenting stowage issues related to steel cargos from our daily operations. This information was shared with Port Users periodically through addendums.

One of the identified stowage issues involves the handling of bundling wires during the tip-lifting process in the rebar discharge procedure. This practice poses a safety hazard to our riggers as bundling wires are not designed for lifting and have a tendency to break.

To mitigate risk, JP recommends that rebar be stowed EITHER in cross stowed manner OR preslung (arranged with lifting slings before shipping out). Such stowage arrangement will henceforth supersede the rebar stowage arrangement provided in the 2019 Guidelines. Detailed information on these two stowage methods is included in Addendum 02 and shared with all port users in this Circular (Attachment #1).

In addition, this Circular also contains excerpts from the published 2019 Guidelines (Attachment #2) which will supersede the wire rod coils (WRIC) reference information previously published under JP Circular No-49A of 2019.

TIMELINE FOR COMPLIANCE TO ADDENDUM 02

Addendum 02 will come into effect on 01 July 2023. To ensure that all port users have sufficient time to comply with the new regulations, there will be a 6-month transition period starting from the effective date. During this period, non-compliance will not result in any penalties. For more details, you can refer to Attachment #3.

During the transition period, Jurong Port will conduct a review of each steel shipment before it is discharged. Any instances of poor and unsafe stowage observed will be communicated to port users (i.e. agents, carriers, operators, vessel owners, load ports, consignees) and remedial actions will be recommended accordingly.

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GST Reg No. 20-0007468N

Jurong Port will continue to engage the industry and port users to create better awareness amongst all port users and improve the stowage and securing of steel cargoes on vessels.

Should any port user have any queries or require further clarification, please do not hesitate to contact Stowage Team (stowage@jp.com.sg)

Yours Sincerely
Walter Lin
General Manager
General Cargo Office
For Jurong Port Pte Ltd.

(This is a computer generated circular and does not require a signature.)

Attachments:

1. Stowage Guideline Addendum 02
2. 2019 Guidelines Excerpt (WRIC)
3. Timeline for Stowage Policy (Addendum 02) Implementation and Impact on Port Users

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Jurong Port (JP) is trying to eliminate the safety hazard faced by our riggers when they handle rebar by their bundling wires during tiplifting in order to perform a basket hitch during the discharge process. This is due to the current manner in which rebar are stowed with their long axis in vessel fore-aft direction and no gaps in-between the bundles. These bundling wires are not certified lifting points, come in various configurations (different grades/number of wraps/ending twists/diameters etc.) and they tend to break during the handling process, hence posing a safety risk to our riggers.

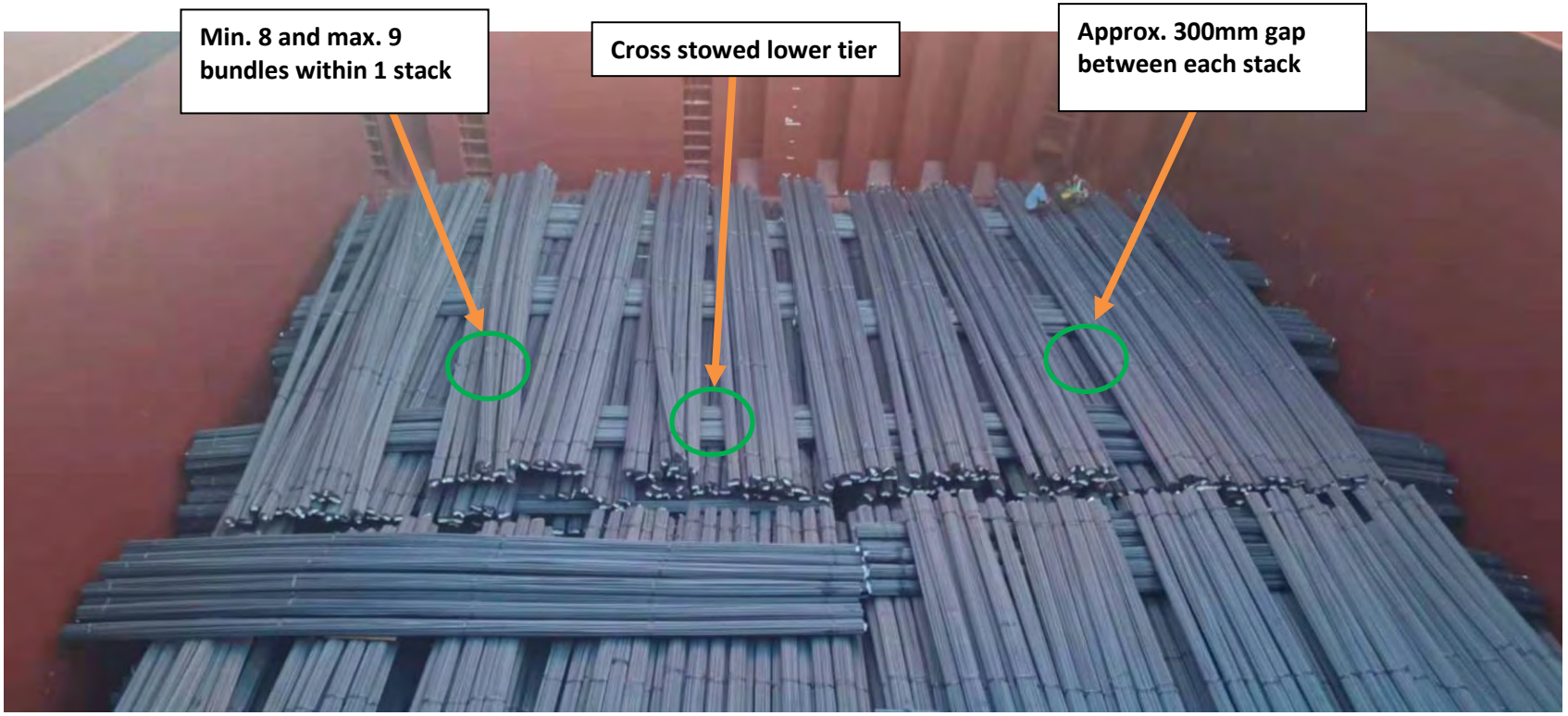
To overcome this hazard, JP recommends that rebar be stowed **EITHER** in cross stowed manner **OR** preslung (arranged with lifting slings before shipping out). Such stowage arrangement will henceforth supersede the rebar stowage arrangement given in the 2019 Guidelines. The following pages contain more information about rebar cross stow & preslung stowage which port users can reference/adhere to.

Addendum 02 contains supplementary information and is to be read in conjunction to the 2019 *Best Practice Guidelines for Stowage and Securing of Steel Cargoes* (the Guidelines) published by Witherby Publishing. This Addendum is available on our website (http://www.jp.com.sg/faqs/stowage-requirements/)

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Cross Stow Recommendations

Rebar bundles will be loaded in a cross stow arrangement, where alternate layers of rebar to be stowed athwartships in combination with a fore-and-aft stow. Schematics and samples for rebar cross stows shall be found in the following pages.



- Typical Cross Stow Arrangement
- Cargo to be levelled & no over-lapping.
- 300mm gap between stacks for chain sling access and eliminate the need for handling via bundling wire and removing the safety hazard.

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Cross Stow Recommendation

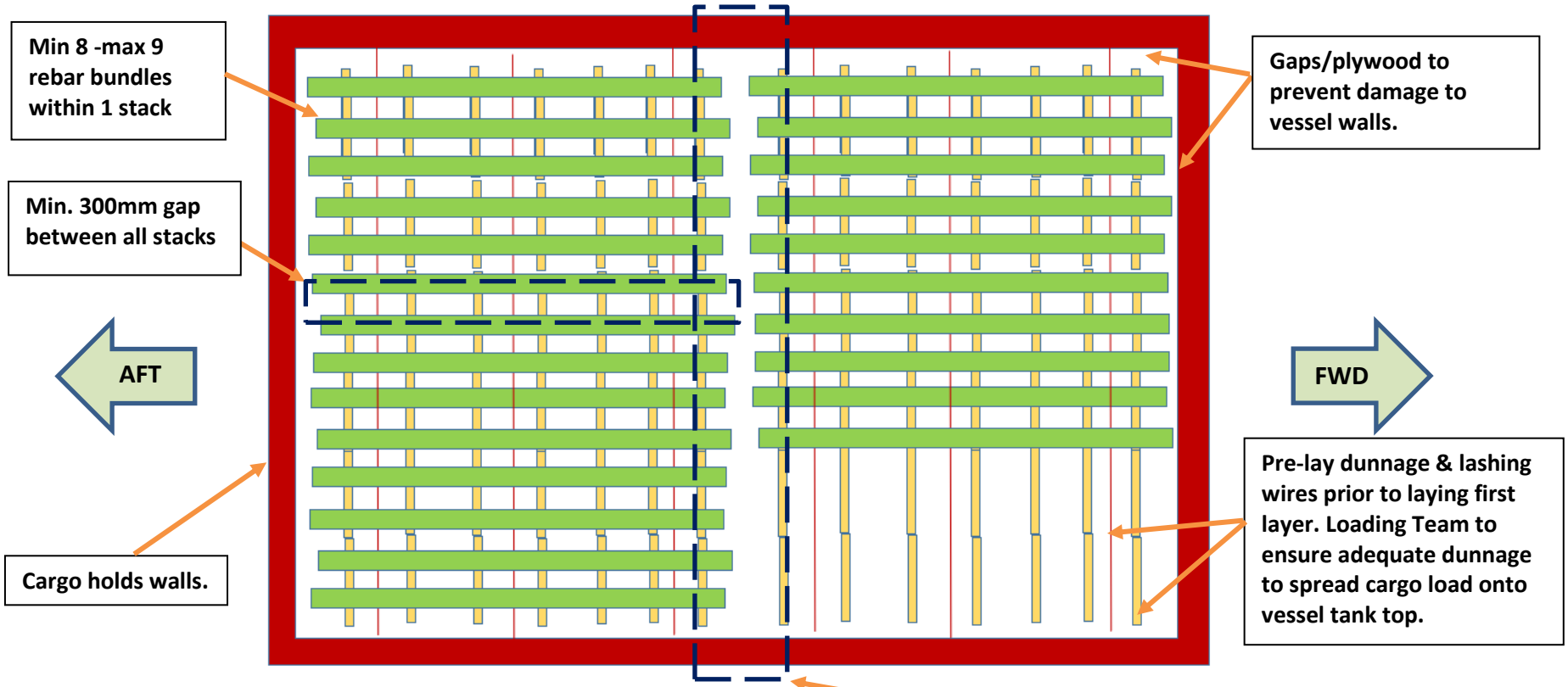
Gaps to prevent damage to vessel.

Alternatively, pre-line with plywood in areas where gap is not possible.

- More examples of cross stow.
- Means of preventing damage to vessel from cargo cross stow (gaps or plywood) is to be subjected to agreement of vessel.

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Cross Stow Recommendation

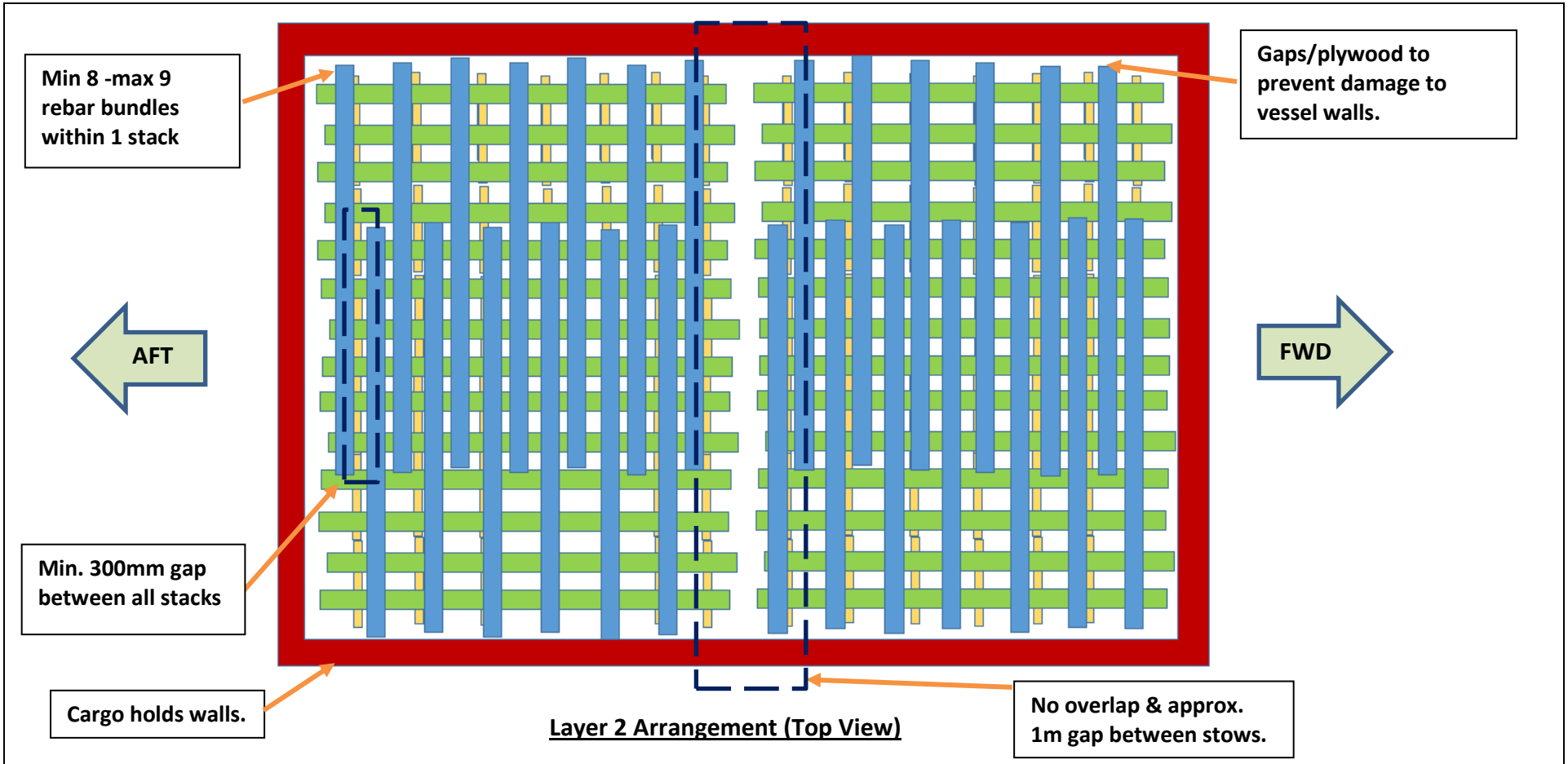


Layer 1 (Tank Top) Arrangement (Top View)

- Typical cross stow arrangement for Layer 1 (tank top) within cargo hold.
- Each green rectangle represents one stack; each stack has min 8 – max 9 rebar bundles of the same diameter.
- Each stack to be maximum of 2 tiers, with width not exceeding 5-6 bundles across.

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Cross Stow Recommendation

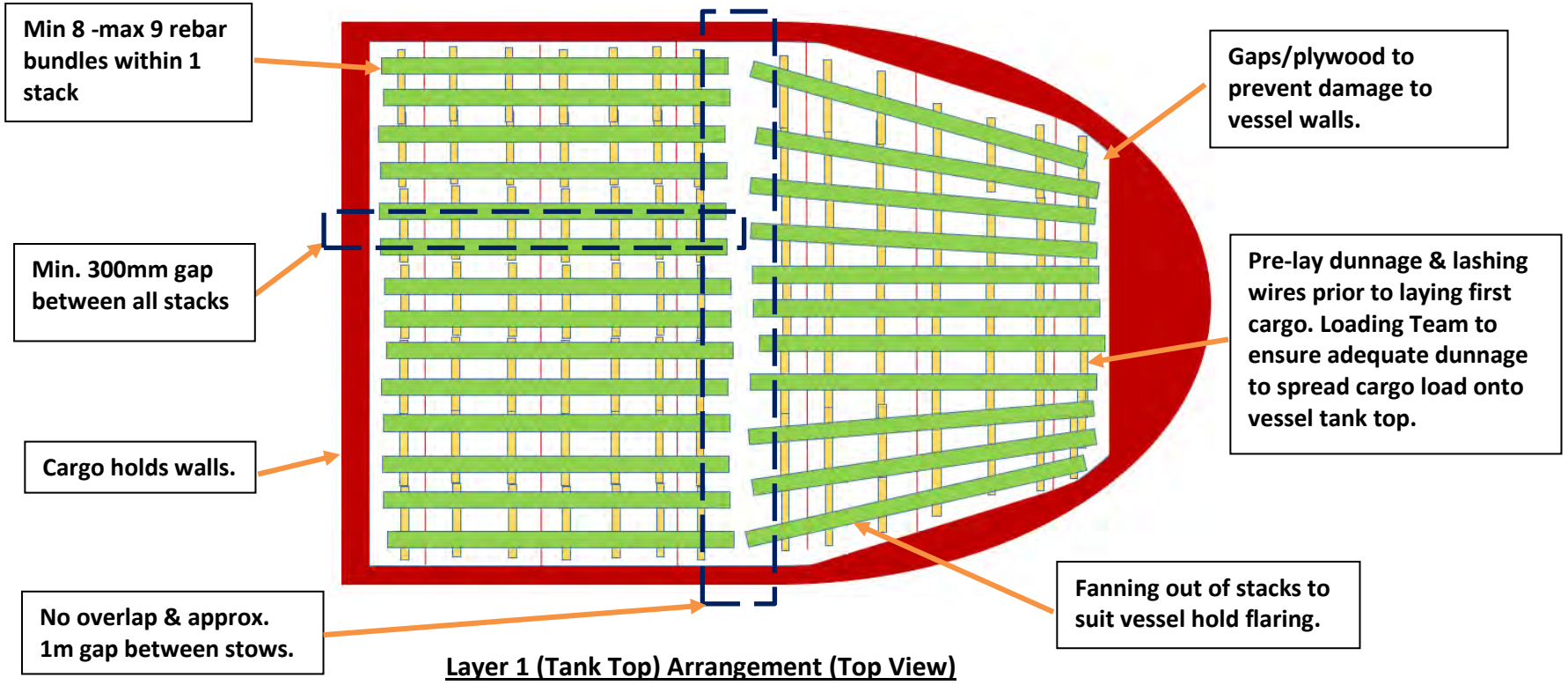


Layer 2 Arrangement (Top View)

- Typical cross stow arrangement for Layer 2 within cargo hold.
- Blue stacks (Layer 2) are identical to green stacks (Layer 1) in configuration.
- Layer 3 and higher: repeat Layer 1 & 2 arrangements.

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Cross Stow Recommendation

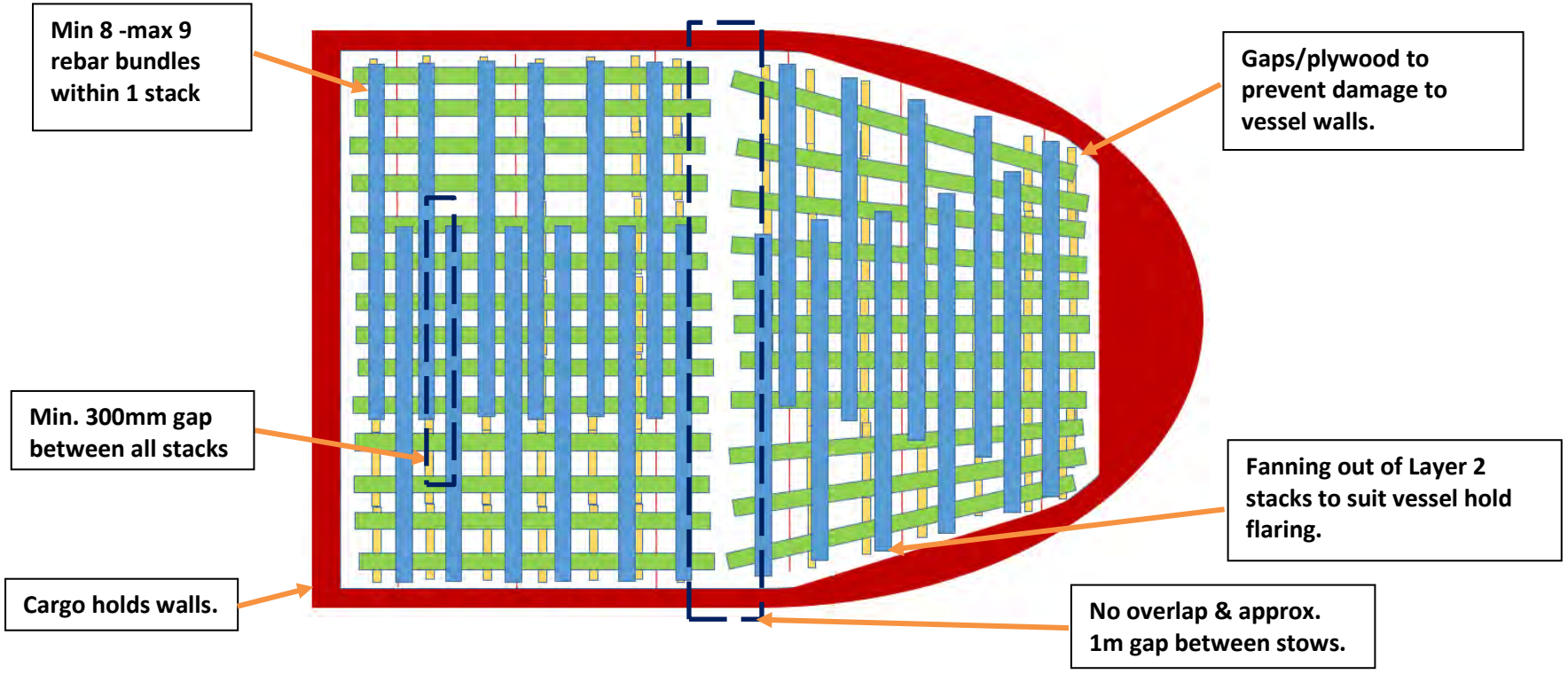


Layer 1 (Tank Top) Arrangement (Top View)

- Typical cross stow arrangement for Layer 1 (tank top) for first/last cargo hold.
- Actual layout may differ due to variety of shape & size of first/last cargo hold.
- Each green rectangle represents one stack; each stack has min 8 – max 9 rebar bundles of the same diameter.
- Each stack to be maximum of 2 tiers, with width not exceeding 5-6 bundles across.

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Cross Stow Recommendation

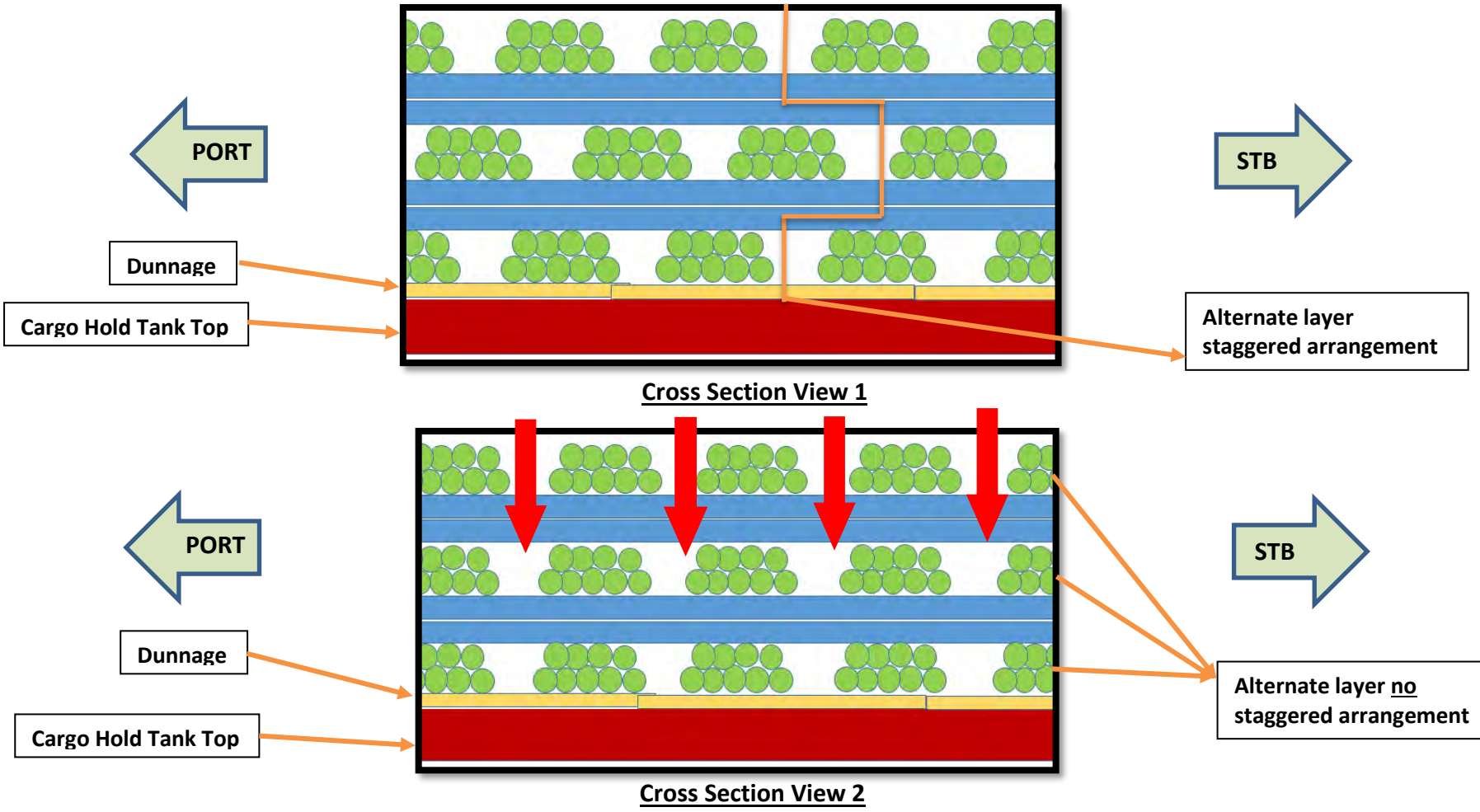


Layer 2 (Tank Top) Arrangement (Top View)

- Typical cross stow arrangement for Layer 2 (tank top) for first/last cargo hold.
- Actual layout may differ due to variety of shape & size of first/last cargo hold.
- Blue (layer 2) rectangles are identical to green (layer 1) rectangles.
- Layer 3 and higher: repeat Layer 1 & 2 arrangements.

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Cross Stow Recommendation

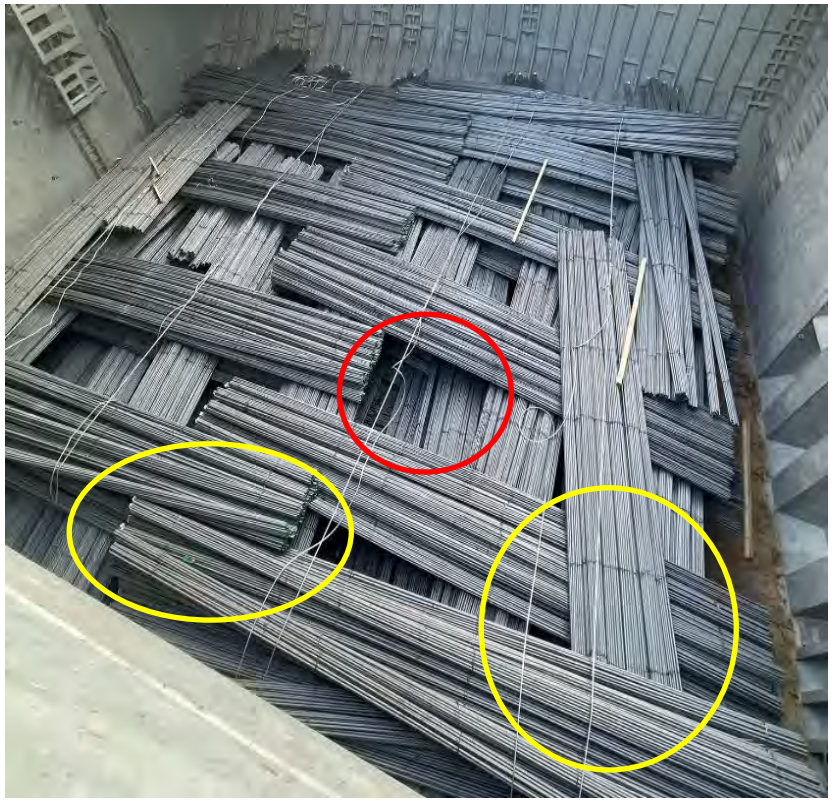


- Top: Cross Section View 1 of cross stowed rebar.
- Alternate layer staggered arrangement – no falling hazard.

- Bottom: Cross Section View 2 of cross stowed rebar.
- Alternate layer no staggered arrangement – falling hazard

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

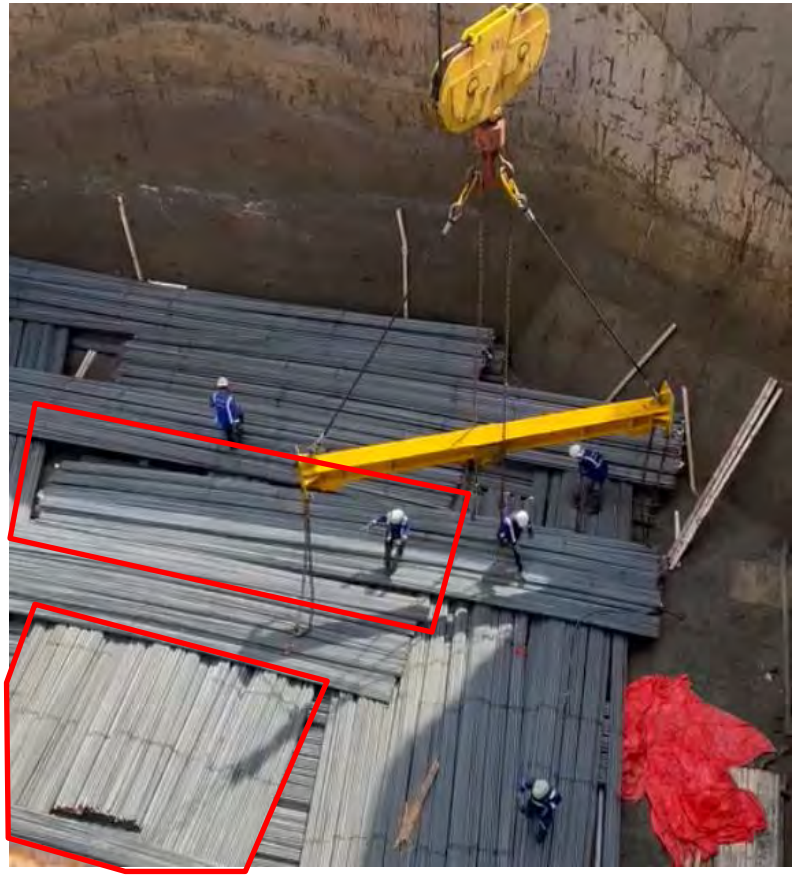
Rebar Cross Stow Recommendation



- (Left Pic, red callout) No staggered arrangement between top & bottom tiers resulting in deep gaps (potential tripping/falling hazard)
- (Left Pic, yellow callout) Overlapping bundles
- (Right Pic, red callout) No gaps for sling access resulting in handling via bundling wire (safety hazard) for tiplifting.

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Cross Stow Recommendation



- No gaps between stacks resulting in extra steps needed for riggers to discharge cargo.

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Pre-Slung Recommendation

For rebar cargo that is not cross stowed, preslung shall be required. Dunnage requirements are as per recommended in the 2019 Guideline.

Only **new slings** shall be used for pre-slinging, and they shall be clearly and permanently labelled with the SWL of the sling and come with Inspection Certificate (1 year validity) issued by Inspection Bodies that are accredited to ISO 17020:2012 for conducting inspection in the field of lifting equipment or equivalent, by a certification body included under the Mutual Recognition Arrangement ("MRA") scheme. More information on MRA can be found at this weblink.

Slings certified in such a manner can only be **used once** for the lift from vessel to wharf. For any subsequent lift thereafter, those slings need to be certified by Singapore Ministry of Manpower appointed Authorized Examiner. For more information on the certification requirements of lifting gear used in Jurong Port, kindly refer to JP Circular No. 45 of 2022.

Test Report No.: 70.435.22.10141.01
Date: 2022-07-13

Test Result(s):

Item	Requirement-test item	Result, Remark	Evaluation
1	Dimension Record the actual size of the product.	A: Total length: 7069.0mm Length of strap: 7009.0mm Width of strap: 50.7mm B: Total length: 5060.0mm Length of strap: 5000.0mm Width of strap: 50.0mm	-
2	Breaking force test Record the breaking force of the product. Requirement: Breaking force ≥9.8kN	A: 23330.0N B: 15450.0N	P

Abbreviation: P=Pass; N/A = Not Applicable; N/T=Not Tested; N/R=Not Requested; P-C=Pass with Comments

End of Test Report

SAMPLE

ilac-MRA A2LA

Accredited Inspection Body

A2LA has accredited

TUV SUD CERTIFICATION AND TESTING (CHINA) CO., LTD.
SHANGHAI BRANCH

Shanghai, People's Republic of China

for technical competence in and compliance with the

Inspection Body Accreditation Program

This inspection body is accredited in accordance with the recognized International Standard ISO/IEC 17020:2012 *Conformity Assessment – Requirements for the operation of various types of bodies performing inspection.* This accreditation demonstrates technical competence for a defined scope and the operation of a quality management system.

Presented this 1st day of November 2021.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3745.02
Valid to October 31, 2023

For the inspections to which this accreditation applies, please refer to the organization's Inspection Body Scope of Accreditation

SAMPLE

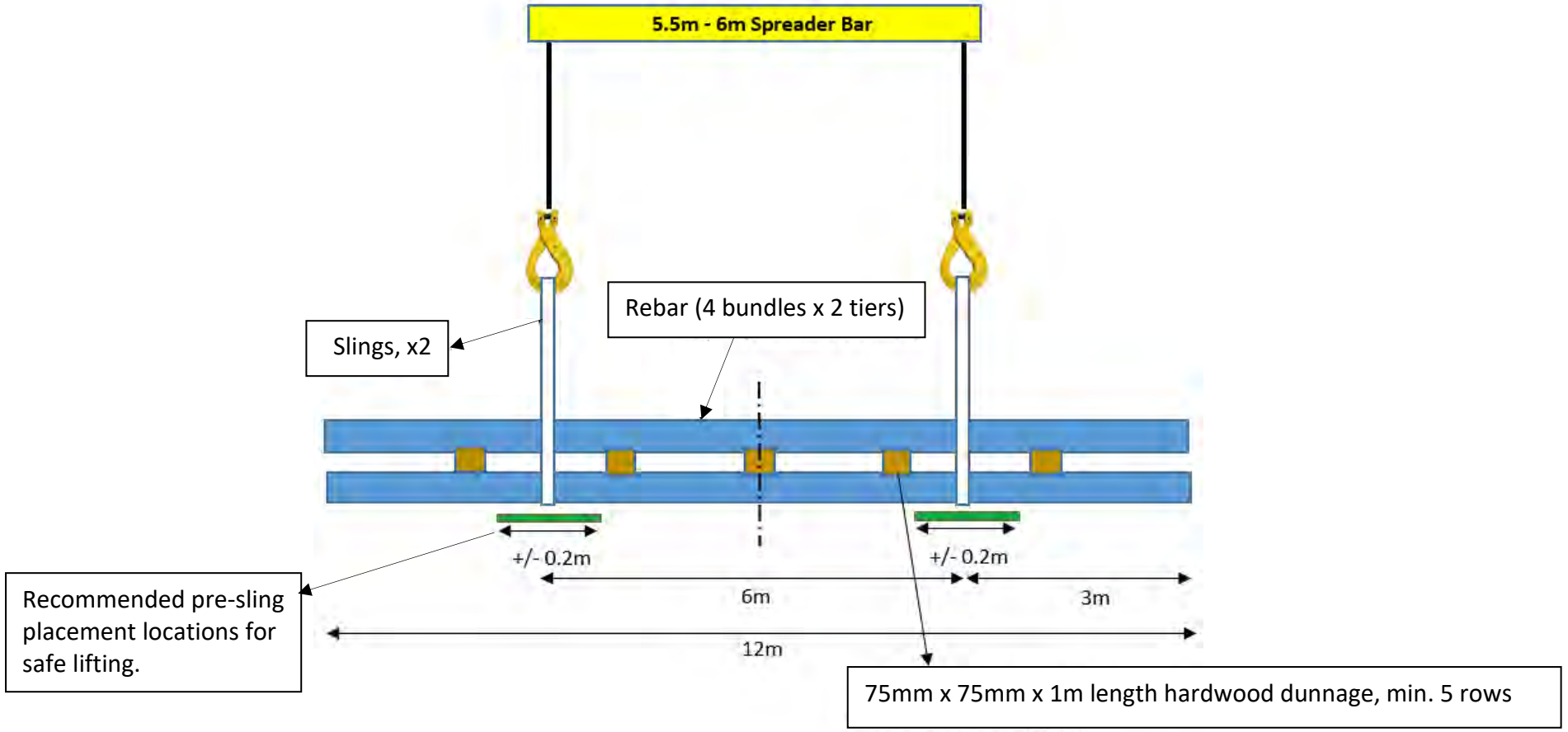
Sample sling inspection certificate (left) & sample Inspection Body accreditation certification (right). **Both certificates need to be submitted** to JP Ops for verification prior to the operations.

Sling certificate shall indicate serial numbers & SWL of all slings used in preslung arrangement and are valid for one year from date of inspection.

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Pre-Slung Recommendation

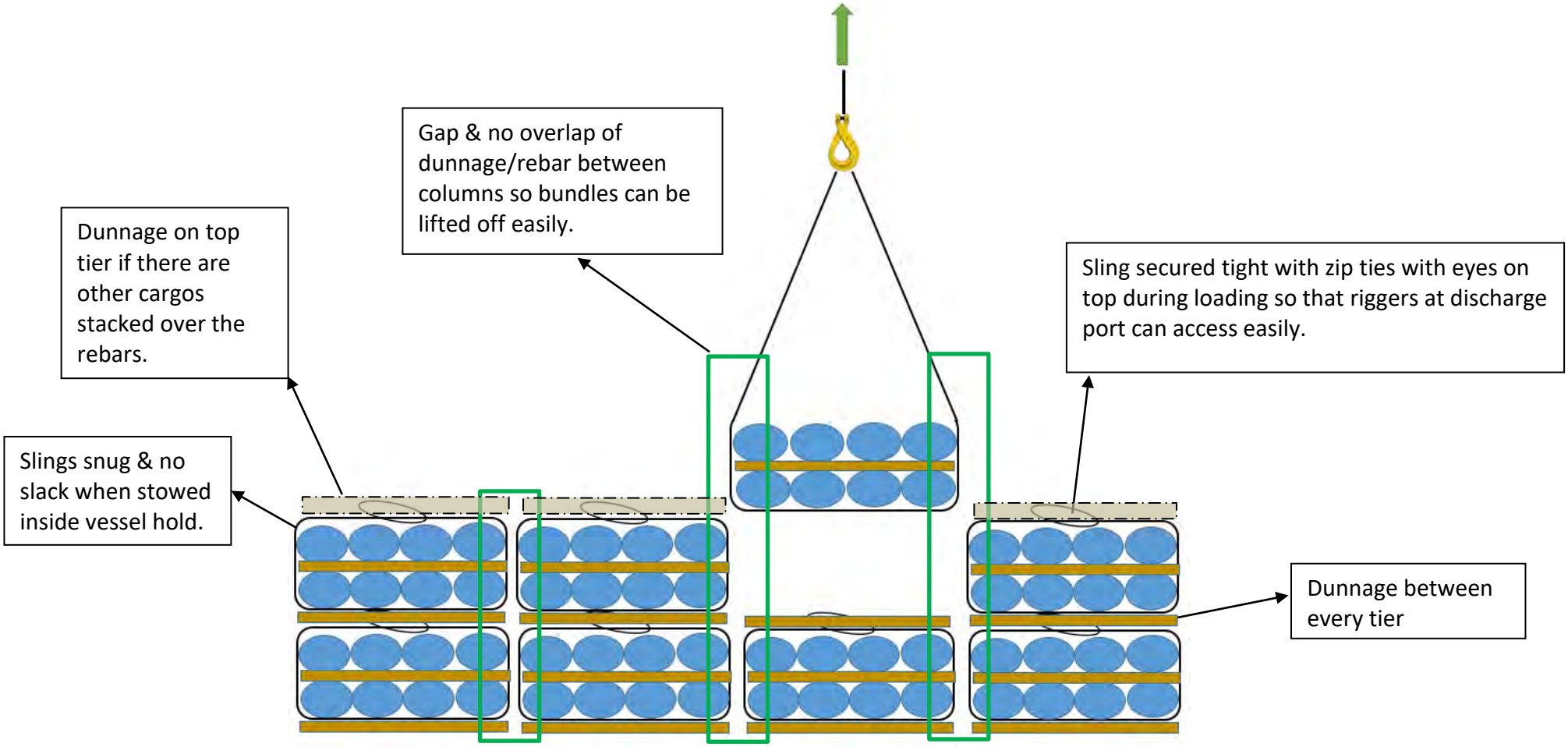
Rebars are recommended to be preslung at Load Port's wharf before being loaded into the cargo hold, arranged in a 4 bundles x 2 tier configuration, separated by dunnage as shown in sketch below. Sling locations are recommended not to deviate more than +/- 0.2m (green zone) from their ideal position for safe lifting, and slings of minimum SWL = 5t x 6m length, eye to eye type to be used, with minimum breaking load to follow ISO or equivalent standard for the different type of slings used, for example fabric/metal mesh/flexible wire rope. (if fabric slings are used, they need to be of at least 2 ply in construction)



Side View of rebar with preslung & dunnage

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Pre-Slung Recommendation



End View of Preslung Rebar Stowed in Vessel Hold

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Pre-Slung Recommendation

A sling combining 6 bundles of rebar ready for loading

The slings for pre-slinging shall be certified and properly marked

Pre-slung 6 m long bundles about to be loaded. Pre-slinging reduces the time needed for discharge operations

Pre-slinging of two tiers of rebar in preparation for loading

ADDENDUM 02 – Rebar Pre-Slung / Cross Stow Recommendations

Rebar Pre-Slung Recommendation

Slings & dunnage on wharf

Sling secured tight with zip ties with eyes on top during loading so that riggers at discharge port can access easily.

Preslung rebar in cargo hold.

Landing onto cargo hold.

Wire Rod in Coils (WRIC)

Wire Rod in Coils (WRIC) is generally shipped in a semi-finished hot drawn condition with no external packaging. However, finished products such as galvanised wire rod may also be shipped and these will be wrapped and protected to avoid damage by handling and moisture ingress.

WRIC comes in various sizes and grades. For example, an established UK steel manufacturer offers rod with diameters from 5.5-16.0 mm, with coil weights ranging from 500-2,200 kg. Coil lengths vary from 1,350-1,700 mm, with a maximum outside diameter of 1,250 mm.

Bundling

WRIC, when protected, will be formed into bundles and usually secured with 4 steel wires or, occasionally, strapping bands. Finished, protected, coils will usually be secured into bundles by strapping bands. These securing wires or strapping bands are not designed for lifting and shall not be used for this purpose.

Each unprotected WRIC shall be bundled by at least 5, equally spread, double wires. The bundling wires shall be secured by at least 4 twists. The use of 5 bundling wires will prevent the lower tiers of WRIC from crushing and will keep the stow tighter without a risk of collapsing. If straps are used, then 5 bundles shall be made as well.

Each bundling wire shall be at least 6 mm diameter.

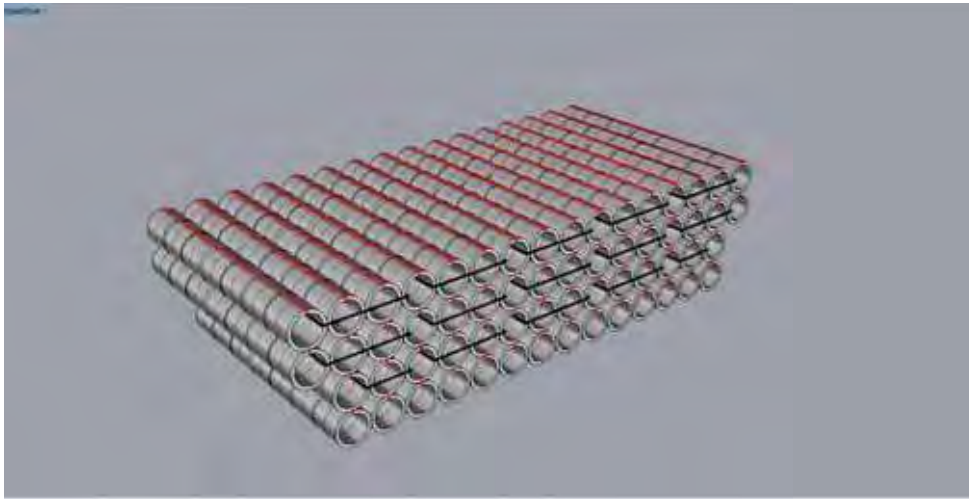
Bundling of WRIC with the use of double bundling wire rods and four twists

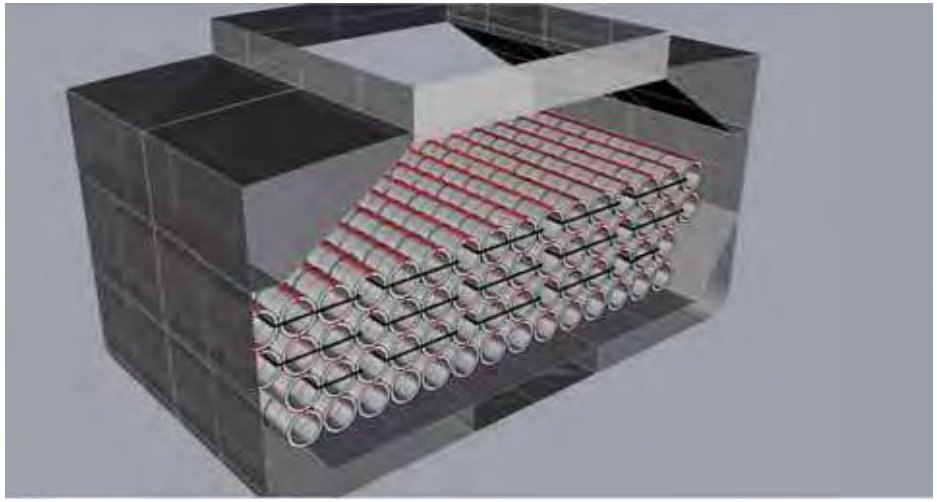
Wire Rod in Coils (WRIC)

Partially protected WRIC secured with 4 strapping bands. The outer canvas/plastic cover offers some protection from the elements

Wire Rod in Coils (WRIC)

Unprotected WRIC shall be bundled with 5 bundling wire rods of minimum 6 mm size. Each bundling wire shall be doubled





Prior to loading, each individual wire rod coil from the stow is required to be pre-slung for safe offloading operation at Jurong Port. The red marks in the schematics above indicate the slings and the black marks indicate the lashing of the coils

Wire Rod in Coils (WRIC)

Dunnage

The lower tier of WRIC on the tank-top or 'tween deck shall be stowed on plywood dunnage sheets to prevent steel-to-steel contact with the ship's structure. The plywood dunnage shall have a thickness of approximately 10 mm. The plywood shall fully cover the tank-top. Timber dunnage or plywood sheets shall be used on hoppers and in way of side frames or vertical bulkheads. When using timber planks for the hoppers or the vertical bulkheads, a minimum of 2 lines per row of coils shall be used.

If the coils are resting against side frames, care shall be taken to ensure that the load on the coils is spread evenly along the length to avoid the coil deforming around the frames. This is particularly relevant on the lower tiers, where the weight of the upper tiers pushing down leads to a greater outward force on the coils at the outboard ends of the stow.

The dunnage placed on the tank-top shall be plywood (and not planks as indicated in the photograph)

Wire Rod in Coils (WRIC)

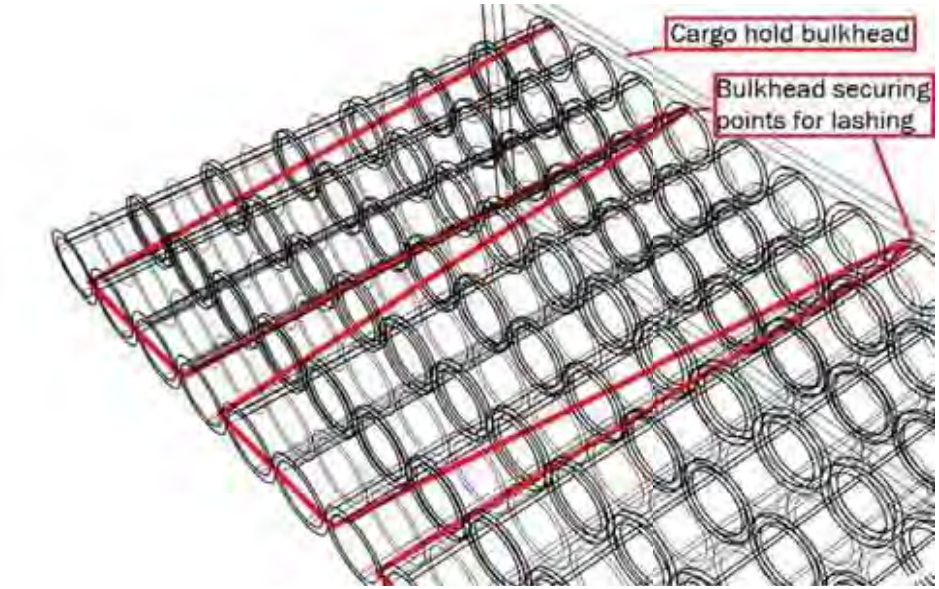
Lashings

If the cargo is stowed homogeneously throughout the full width and length of the cargo hold, no lashing will usually be necessary. If the cargo only fills part of the hold and has an open face, the coils in the upper tiers will need to be secured.

If loading less than a full hold, each tier of the WRIC stow should be secured by wire lashings to the aft or forward bulkheads in the following manner:

1. The WRIC stow shall, preferably, be loaded in the aft part of the cargo hold and the aft bulkhead shall be used for securing of the lashing wires.
2. Appropriate lashing points shall be prepared on the bulkheads so that the lashing wires are not secured to structural components of the bulkheads. D-shackles and rims shall be used. These shall be properly welded and their condition inspected and verified.
3. The lashing wires shall be run through every third or fourth coil from a tier and secured to the bulkhead, as indicated in the photographs and schematics. This method of securing is particularly important for high stows of WRIC.
4. Strapping bands shall not be used for lashing and securing to the vessel's bulkheads.
5. The lashing wires shall be equally tended to prevent the stow of WRIC from shifting during passage and discharging.

Lashing and securing arrangement of one tier of WRIC to the bulkhead (a view from the front)



Lashing and securing arrangement of one tier of WRIC (a view from the top showing the securing points on the bulkhead)

Wire Rod in Coils (WRIC)

The tiers of the stow have been lashed back with wires to the after bulkhead. The number of tiers must meet the manufacturer's recommendations

The WRIC tiers in the 'tween deck are lashed with steel bands. Steel bands are not elastic and cannot be secured to the vessel's bulkheads, so wire lashings should be used instead

For ease of handling, 16 mm (6 × 12) wire rope is considered suitable for lashing. The upper tiers shall be secured by wires and lower tiers may be looped together using nylon strapping.

Wire Rod in Coils (WRIC)

The American Club, in their publication '*Transport Guidance for Steel Cargoes*', consider that, for ease of use, 16 mm (6 × 12) wire rope with bulldog clips, turnbuckles and shackles would normally be used to lash steel cargoes.

For wires of up to 19 mm diameter, a minimum of 3 bulldog grips shall be used at a spacing of approximately 6 times the diameter of the wire. The loose end shall be of a length approximately 5 times the diameter of the wire. The grip saddles shall be on the live (load bearing) wire. The wire lashing shall be tightened with the use of rigging screws or turnbuckles (UK P&I Club *'Best Practice: The Application of Bulldog Grips'*).

The publication 'Thomas' Stowage' provides stricter guidelines with respect to the use of bulldog grips that are based on the size of the wires:

- *12-17 mm diameter – a minimum of 4 grips*
- *18-24 mm diameter – a minimum of 5 grips*
- *25+ mm – a minimum of 7 grips.*

The bolts should be tightened sufficiently to compress the wire to ⅔ of its nominal diameter. For lashing WRIC, 3 bulldog grips are considered to be sufficient for a 16 mm wire.

Incorrect use of bulldog grips

Incorrect use of bulldog grips with grips on the live wire. Insufficient number of grips used

Wire Rod in Coils (WRIC)

Stowage

All cargo shall be stowed in accordance with the IMO Code of Safe Practice for Cargo Stowage and Securing (CSS Code).

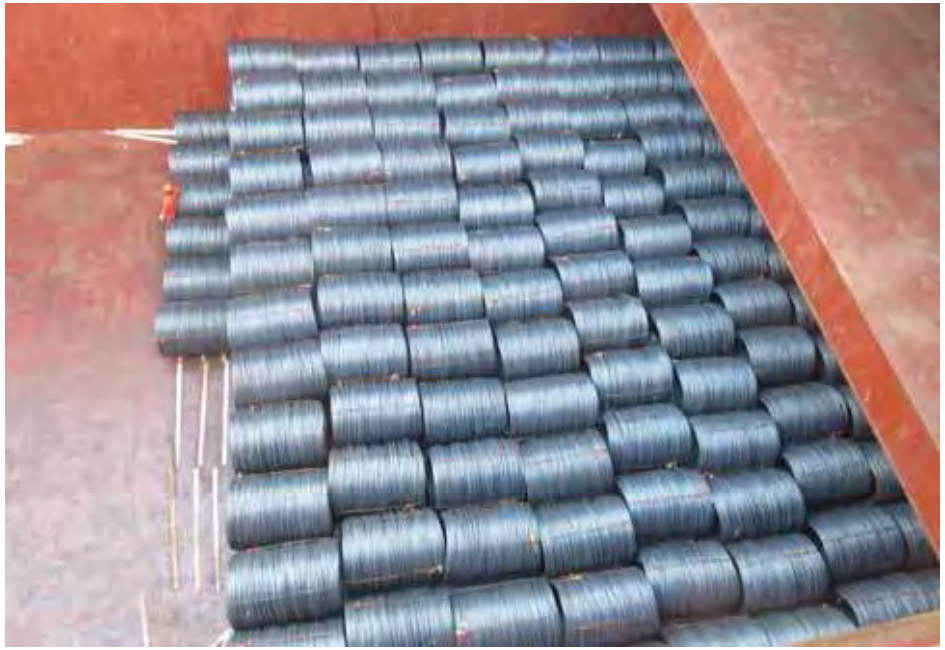
Coils are generally stowed with the axis in a fore-and-aft direction, although they may be stowed athwartships under the large wing spaces on bulk carriers to facilitate discharge. According to the industry accepted publication *'Thomas' Stowage'*, WRIC shall be stowed across the full width of the cargo hold and arranged so that the coils are tightly and compactly stowed.

The manufacturer shall provide their recommended approved stowage with respect to the maximum level of the stow and number of tiers.

Prior to or during the loading operation, all WRIC from stow are required to be individually pre-slung for safe and efficient offloading at port.

Compact, rigid WRIC are vital to effect a good stow. With their higher than normal stowage factor, WRIC can be stowed on either the tank-top or on the 'tween deck if required. The stowage shall be uniform and compactly arranged to avoid breakdown of the stow and subsequent crushing and/or disintegration of the bundles. Coils shall be handled with care to prevent 'nicking', scoring, scratching, localised sharp bends and/or twists to the windings.

If the coils are of different sizes, the largest coils shall be stowed in the lower tiers. Slack coils should not be placed in the lower tiers.



WRIC being stowed across the full width of a box-shaped cargo hold

WRIC loaded in the 'tween deck space. The lashing gang are securing the top tier of the face of the stow

Wire Rod in Coils (WRIC)

If necessary, more dunnage shall be used to level the stow and/or fill in any gaps. Each lower-tier coil shall rest against another or the adjacent bulkhead. The maximum number of coil tiers is subject to several factors, including the weight of the coils, the rigidity of the coil structure and the proper stowage of the coils. Written advice shall be sought from the shipper/manufacturer of the coils if in doubt. Prior to the loading, confirmation shall be sought and obtained, from the manufacturer, of the maximum allowed number of tiers in one stow. If such advice is not provided, the stow shall not normally exceed 10 tiers.

Wire coils may be stowed on top of other steel cargoes (plate, pipe, section, H-beam, etc.) but shall not be over stowed by other cargo as WRIC can easily be deformed.

Tiers shall, ideally, be staggered to avoid a vertical face and the face shall never overhang. If the coils are not staggered, two lengths of dunnage placed in the cantlines bridging two rows of coils will, when over stowed, help to bind the rows together.

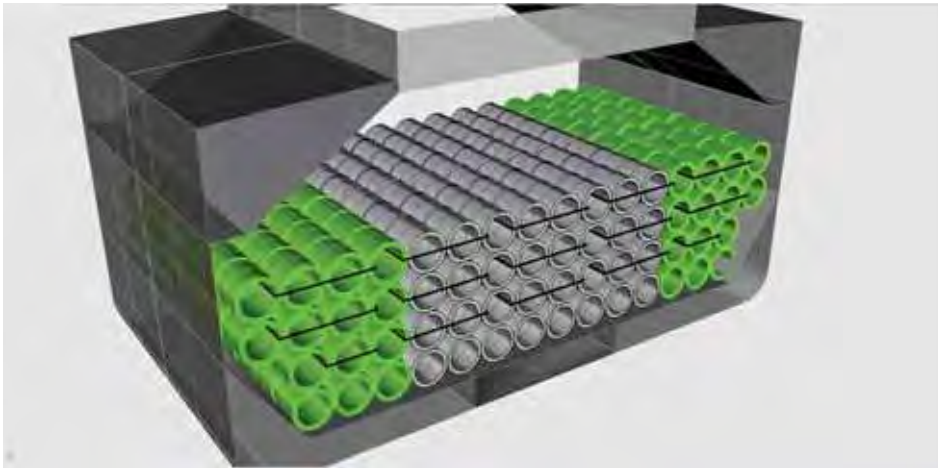
When the stow is not spread across the whole tank-top, but loaded with other cargoes, a high stow of WRIC is recommended to be loaded in the aft part of the hold to prevent a possible collapse in the event of excessive stern trim of the ship. When the cargo is part loaded in the hold, with a high vertical face, the coils at the forward edge of the stow shall be pre-slung and each tier additionally secured with lashing to the bulkhead. This is for stevedore safety as it reduces the risks involved in trying to pass lifting wires or strops through these coils.

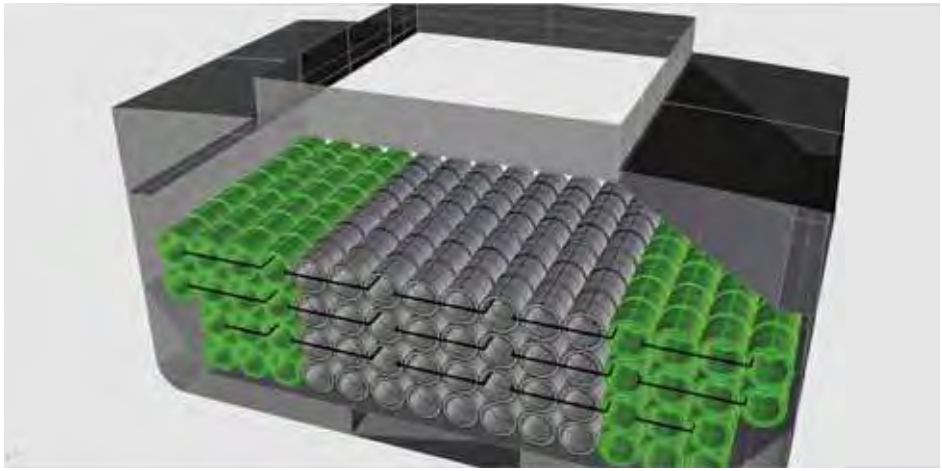
WRIC loaded on top of rebar, segregated with plastic sheets

Staggered and lashed upper tiers of WRIC

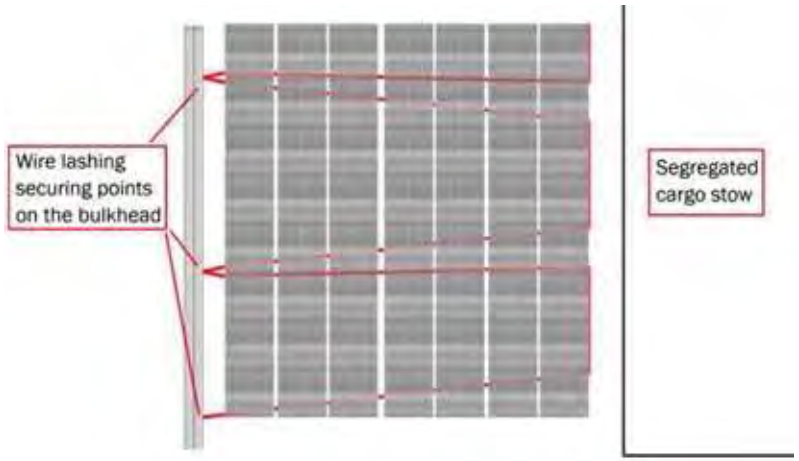
Wire Rod in Coils (WRIC)

Correct Stowage and Lashing (pre-slinging is not indicated in these schematics)





Fully loaded cargo hold. The under-coaming coils should be lashed separately from the open hatch cargo stow.
Lashing of WRIC is normally not required for a full stow. The top three tiers may be lashed to prevent possible shifting.



	Under-coaming stow
	Open hatch stow

Partly loaded cargo hold. The tiers of WRIC shall be lashed in a group. The lashing wires shall be run through the third or fourth coils and secured to the bulkhead. Ideally, all tiers from the tank-top should be lashed.

Wire Rod in Coils (WRIC)

Rust-covered, unprotected coils in open storage. The coils are damaged and the securing bands are loose. These coils will not make a tight and secure stow

Unprotected coils in open storage before loading. Note the unwound coil highlighted in yellow. Such WRIC shall not be accepted for loading

Unprotected coils brought to the ship by trailer. Only 4 single wire rod bundles have been applied

Covered coils brought to the ship for loading

Wire Rod in Coils (WRIC)

Slinging the coils for loading. One nylon belt per coil is used to avoid damage to the cargo

By using lifting strops attached to beams (spreader), up to 6 coils at a time may be loaded in this layout

In this set-up, 8 coils are loaded. However, the slings are made of wire. This is not recommended as it may damage the coils or their securing straps/wires

Poor loading practice. Coils landed directly onto a tank-top covered with previous cargo residues. The cargo residues may react with the steel

Wire Rod in Coils (WRIC)

The coils are landed in the hatch square before being positioned in the under-deck areas by forklift truck. The WRIC are loose and will collapse when stowed in height

Timber dunnage on the tank-top/'tween deck is positioned on the tank-top. Plywood dunnage sheets are required

Plank-type, timber dunnage for WRIC. 15 × 100 mm cross-section is a typical size. The dunnage in the photograph bears the ISPM15 stamp. This dunnage is to be used for the bulkheads only, and not the tank-top

No plywood dunnage under the coils. The bottom of the coil is in direct contact with the tank-top. Any moisture collecting on the tank-top will directly affect the coils

Wire Rod in Coils (WRIC)

No timber dunnage between the coils and the cargo hold bulkhead. Only 4 wire bundles in use instead of 5

After the under-coaming areas are stowed, the coils are loaded into the hatch square and forklift trucks are used to ensure that the coils are tightly stowed across the hold. No plywood dunnage has been used

Steel plates are used on top of the lower tiers to enable a forklift truck to stow the upper tiers under the coaming area

The coils are landed on the steel plate ...

Wire Rod in Coils (WRIC)

... and positioned under the deck area

Near completion, the coils are stowed directly into position. This often leads to poor stowage. The above shows a row of coils that has partially collapsed

These coils have been randomly stowed and will be time-consuming to offload. Crew supervision is essential to stop this standard of loading

Collapsed stow of WRIC

Wire Rod in Coils (WRIC)

Unwound and damaged coils. These should not have been loaded as they may be rejected by the receivers and will be difficult and dangerous to offload

The stow of coils is not tight across the hold due to the unwound coils

One coil has fallen off the stow and is sitting vertically, and unsecured

Poorly stowed outer coils in a bulk carrier. Although the tiers are lashed, the outboard coils are leaning forward and will likely collapse on the voyage

Wire Rod in Coils (WRIC)

No timber dunnage between the sloping plate and the coils. Steel-to-steel contact means there is no friction to restrict the outer coil from moving forward

Cargo stowed above WRIC, which shall not be considered. In addition, the lashings for this cargo are attached directly to the wire rod. The hook will either fall out or deform the wire rod, resulting in loose lashings

Cargo stowed above a high, loose, stow of WRIC. The face of the stow is in imminent danger of collapsing. The cargo on top will fall onto the steel coils below

Heavy crane counterweights and blocks stowed at the front edge of a high stow

Wire Rod in Coils (WRIC)

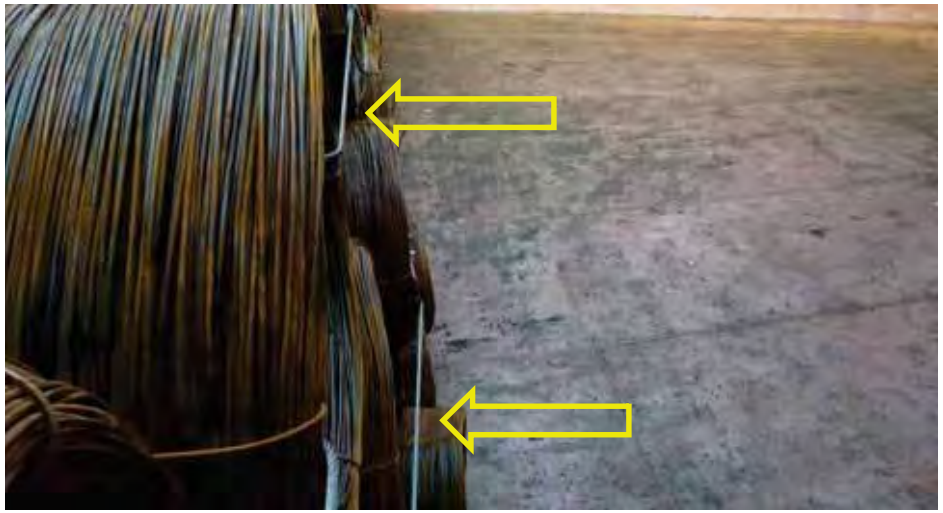
Lengths of structural steel stowed on top of coils. The WRIC stow collapsed and had to be offloaded. Many of the coils were damaged

Collapsed stow and deformed coils due to loading cargo above the coils

Completing a stow in the aft part of the cargo hold. The forward-facing vertical wall will need to be lashed

Lashing the vertical face. Note the lack of safety harnesses. No safety access to the vertical part of the stow

Wire Rod in Coils (WRIC)



Wires are passed through the forward face of the coils

The lashing wires are then passed through the coils towards the adjacent bulkhead

The lashing wires are then secured to a designated lashing point inside the cargo compartment

The wires shall not be secured to the bundling wires of WRIC further back in the stow

Wire Rod in Coils (WRIC)

No part of a coil shall be used for securing any other cargo. The wire rod will be pulled out, which will damage the cargo and result in loose and ineffective lashings

Ports have experienced poorly stowed and secured WRIC. Here, the face of a vertical stow has partially collapsed. This is extremely dangerous for the stevedores when releasing the lashings

This stow of coils has partially collapsed, with damaged and loose coils. Cargo in this condition is time-consuming and hazardous to offload

Another reasonable stow, although the coils in the wing space are stowed longitudinally. However, there is safe access to the cargo direct from the Australian ladder

Wire Rod in Coils (WRIC)

An athwartships stow in the under-coaming space. While this type of stow makes offloading by forklift truck easier and quicker, it should be lashed individually

Two stows of WRIC and rebar that are too close together. No lashing on the WRIC. Rebar offloading is in progress and collapsing of the WRIC was observed during the offloading

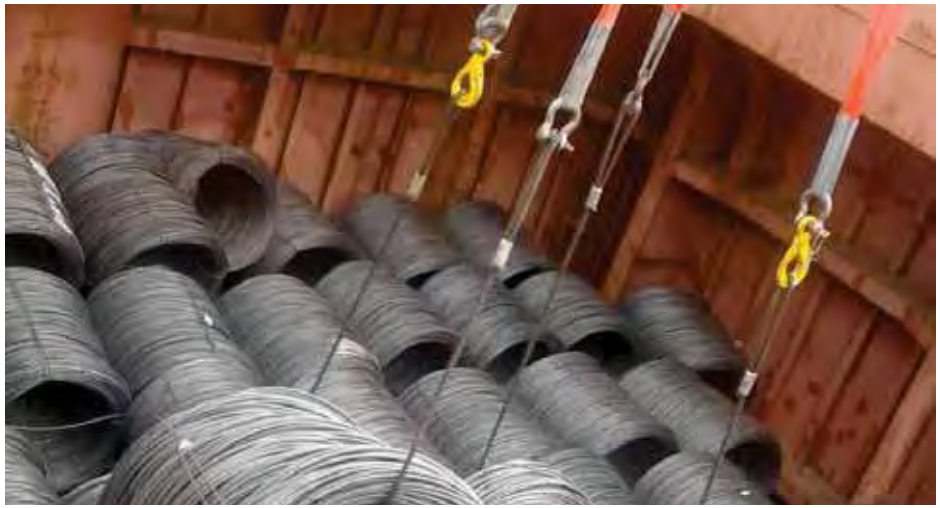
Combined stow of rebar and WRIC. Collapse of the WRIC in the under-coaming spaces. Difficult and unsafe access for offloading

Improper stow. Access to the lower tiers of the vertical face is hazardous

Wire Rod in Coils (WRIC)

6 WRIC handled with 2 single leg baskets

The coils will be offloaded by a single leg basket through the WRIC. 4 WRIC handled with 2 wire slings



2 WRIC handled with 2 single leg baskets

Jurong Port has a multi-fork side-loader for transportation from the quay to the storage area

Wire Rod in Coils (WRIC)

Checklist

- ☐ Plywood dunnage, of at least 10 mm thickness, shall be used on the tank-top. Wooden planks of approximately 15 mm × 100 mm cross-section shall be used for the bulkheads and, if required, between tiers.
- ☐ The height of the stow shall not exceed the manufacturer's recommendations for maximum number of tiers. If such recommendations are not provided, they should be requested. Without a manufacturer's recommendation for the maximum number of stow, it would be considered reasonable for the tiers not to exceed 10 in height, but this is also dependent on the ship's permissible tank-top loading limits.
- ☐ For part hold loading, the cargo shall be loaded against the aft bulkhead.
- ☐ For the face of a part stow, as a minimum, the upper 3 tiers shall be secured to the aft bulkhead.
- ☐ Lashing of the top 3 tiers is not required for a full stow of WRIC. It is, however, recommended.
- ☐ When the under-coaming WRIC are stowed athwartships, the top 3 tiers shall be lashed in a group. This stow is not to be lashed to the open hatch stow. The open hatch stow may not be lashed if the stow is across the full length of the tank-top. It is good practice, however, for the top 3 tiers to be lashed in a group.
- ☐ The WRIC shall not be overloaded with other cargoes.
- ☐ For partly stowed cargoes, front rows adjacent to the face are to be pre-slung. This will assist the offloading in the event of collapsing of the stow in transit. (The number of tiers depends on the maximum height that a forklift truck can take them.)
- ☐ In the cargo compartments, where possible, safe passage shall be provided directly from the ladders to the top of the cargo stow. In bulk carriers, this access shall be provided directly from the Australian ladders. Safe access shall also be provided from the tank-top to the top of the cargo stow.